MIAMI-DADE COUNTY
DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Armor Screen Corp.
1881 Old Okeechobee Road
West Palm Beach, FL 33409

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER- Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: "Armor Screen Series 63 " Flexible Wind Abatement System

APPROVAL DOCUMENT: Drawing No. 01-2010, titled " Armor Screen Series 63 Hurricane Protection ", sheets 1 through 11 of 11, prepared by Gary D. Foreman, P.E., dated October 01, 2010, signed and sealed by Gary D. Foreman, P.E. on March 30, 2015, bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and the expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant

LABELING: Each panel shall bear a permanent label with the manufacturer's name or logo, City, State, the following statement: "Miami-Dade County Product Control Approved", and NOA number, per TAS-201, TAS-202, and TAS-203, unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA **revises NOA # 12-0417.14** and consists of this page 1, evidence submitted pages E-1, E-2, & E-3 as well as approval document mentioned above.
The submitted documentation was reviewed by **Helmy A. Makar, P.E., M.S.**

MIAMI-DADE COUNTY APPROVED

07/30/2015

NOA No. 15-0518.03
Expiration Date: 01/26/2017
Approval Date: 07/30/2015

Armor Screen Corp.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 10-1104.03

A. DRAWINGS

1. *Drawing No. 01-2010, titled " Armor Screen Series 63 Hurricane Protection ", sheets 1 through 11 of 11, prepared by Gary D. Foreman, P.E., dated October 01, 2010, signed and sealed by Gary D. Foreman, on January 09, 2012.*

B. TESTS

1. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of Armor Screen Flexible Hurricane Wind Abatement System, prepared by Fenestration Testing Laboratory, Inc., **Report No. 5889**, dated August 26, 2009, signed and sealed by Julio E. Gonzalez, P.E.*
2. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of Armor Screen Flexible Hurricane Wind Abatement System, prepared by Fenestration Testing Laboratory, Inc., **Report No. 5533**, dated February 08, 2008, signed and sealed by Marlin Brinson, P.E.*
3. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of Armor Screen Flexible Hurricane Wind Abatement System, prepared by Fenestration Testing Laboratory, Inc., **Report No. 5279**, dated August 26, 2009, signed and sealed by Julio E. Gonzalez, P.E.*

C. CALCULATIONS

1. *Comparative Analysis and Anchor calculations dated October 20, 2010, 66 pages, prepared by Gary D. Foreman, P.E., signed and sealed by Gary d. Foreman, P.E.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Permitting, Environment, and Regulatory Affairs (PERA).*

E. MATERIAL CERTIFICATIONS

1. *Fabric specifications.*

2. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 12-0223.13

A. DRAWINGS

1. *Drawing No. 01-2010, titled " Armor Screen Series 63 Hurricane Protection ", sheets 1 through 11 of 11, prepared by Gary D. Foreman, P.E., dated October 01, 2010, signed and sealed by Gary D. Foreman, on February 16 & 17, 2012.*

B. TESTS

1. *None.*

Henry A. Makar, P.E., M.S.
Product Control Unit Supervisor
NOA No. 15-0518.03
Expiration Date: 01/26/2017
Approval Date: 07/30/2015

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Permitting, Environment, and Regulatory Affairs (PERA).*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. OTHERS

1. *Florida Building Code, 2010 Edition, Compliance Statement Letter by GD Foreman PE, SE, AIA, dated February 16, 2012, signed and sealed by Gary D Foreman, P.E.*

3. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 12-0417.14

A. DRAWINGS

1. *Drawing No. 01-2010, titled " Armor Screen Series 63 Hurricane Protection ", sheets 1 through 11 of 11, prepared by Gary D. Foreman, P.E., dated October 01, 2010, signed and sealed by Gary D. Foreman, P.E. on January 30, 2013.*

B. TESTS

1. *Test report on End Retention Component B of Armor Screen Flexible Hurricane Wind Abatement System, prepared by Architectural Testing,* ***Report No. C5783.01-450-43,*** *dated 01/29/2013, signed and sealed by Vinu J. Abraham, P.E.*
2. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of Armor Screen Flexible Hurricane Wind Abatement System, prepared by prepared by Architectural Testing,* ***Report No. C1475.01-450-18,*** *dated 08/31/2012, signed and sealed by Vinu J. Abraham, P.E.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *Self Ignition Temp. test, Rate of Burning test, and Smoke Density test by Hurricane Engineering & Testing, test report # HETI-12-F105, dated 04/11/2012, signed and sealed by Rafael E. Droz-Seda, P.E.*

Henry A. Makar, P.E., M.S.
Product Control Unit Supervisor
NOA No. 15-0518.03
Expiration Date: 01/26/2017
Approval Date: 07/30/2015

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

4. NEW EVIDENCE SUBMITTED

A. DRAWINGS

1. *Drawing No. 01-2010, titled " Armor Screen Series 63 Hurricane Protection ", sheets 1 through 11 of 11, prepared by Gary D. Foreman, P.E., dated October 01, 2010, signed and sealed by Gary D. Foreman, P.E. on March 30, 2015.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

Helmy A. Makar, P.E., M.S.
Product Control Unit Supervisor
NOA No. 15-0518.03
Expiration Date: 01/26/2017
Approval Date: 07/30/2015

ARMOR SCREEN SERIES 63 HURRICANE PROTECTION

GENERAL NOTES:

- This Wind Abatement / Impact Hurricane Protection System is designed and tested to comply with the High Velocity Hurricane Zone (HVHZ) of the Florida Building Code, 2014 Edition.
- The design loads are calculated in accordance with ASCE-7 per the Florida Building Code and ASCE/SEI 7-10 per allowable stress design (ASD).
- Testing meets the current Florida Building Code; TAS 201; TAS 202; TAS 203 and fulfills its requirement for opening protection.
- The unbreached envelope criterion is met when this approved wall component encloses the protected opening all around.
- The open areas in the Armor Screen Fabric are small enough that the surface tension of water causes the barrier screen to become solid in the presence of rain, and in actual hurricane conditions has been shown to prevent damaging voluminous water intrusion, even from torrential rains.
- Has satisfied checklist #0445 for resistance to burning, smoke, ignition, temperature, and weathering and qualifies as a permanently installed building component; ASTM G155, ASTM D638, ASTM C158, ASTM D635 - C1, ASTM D1929.

- ASTM G155
- ASTM D638
- ASTM C158
- ASTM D635 - C1
- ASTM D1929

- Product Marking: A permanent label shall be affixed to the screen barrier with the following statement: "Armor Screen Corporation, Current Address, "Miami-Dade County Product Control Approved", Patented and Patents Pending, US Patent No. 6176050".

PRODUCT DATA:

- Geosynthetic hurricane screen: The hurricane screen shall be produced from a polypropylene, woven geotextile fabric with filaments woven such that the filaments retain dimensional stability relative to each other.

The woven geotextile fabric shall have the following minimum average roll values:

Grab Textile Strength	(ASTM D4632)	425 x 325 LBS
Puncture Strength	(ASTM D4833)	130 LBS
Mullen Burst	(ASTM D3786)	675 PSI
Trapezoidal Tear	(ASTM D4533)	150 x 125 LBS
Wide Width Tensile Strength	(ASTM D4595)	225 x 205 LBS/IN
Thickness	(ASTM D5199)	20 MIL.
Wide Width Elongation	(ASTM D4595)	22 x 21%
Apparent Opening Size		30 US STD Sieve
Percentage of Open Area		5%

All Geosynthetic Hurricane Screen assembly details depicted within these drawings are typical for the installation of this wind / rain abatement and impact system only. All other building components shown herein are depicted as existing or samples and not constructed by the screen company.

LIMITATIONS OF USE:

Maximum Span	144"
Maximum Non-Span	Unlimited, Utilizing side overlapping details, page 4
Maximum Design Pressure	+60 / -63 PSF

- Span (anchor span) equals the distance between the primary rows of anchors on opposing sides of the screen and when calculated with negative wind pressure, determines fastener size and spacing. "Opening Span" is equal to the opening size of the protected opening and when calculated with the positive wind pressure, determines the deflection for HVHZ applications. Refer to page 11 for Deflection Table.

INSTALLATION NOTES:

- Deflection is the minimum glass separation measured at mid span of the screen and subject to interpolation between listed spans (see tables on page 11). Separation offset may be achieved alone or by any combination thereof, Natural Deflection, Angled Style Screens, Storm Bars and Pneumatic Devices.
- Screen may be mounted with opposing primary anchored perimeters (span) in vertical, horizontal, or any alignment appropriate to the structure being protected.
- If the screen does not return to the structure it should extend past protected opening by distance equal to or greater than 1 ½ times the offset. For trapped openings the screen should extend complete to fill the opening.
- The screens may be installed at any height on the structure as long as the design pressure rating for the screens is not exceeded.
- Anchors on the non-primary perimeter side (span side) of the screen are optional (e.g. to limit potential sag in the screen or reduce movement on the free side or other site specific reasons).
- The thickness of typical facing materials i.e. stucco, siding, stone, brick, pavers, etc. are not to be considered part of the anchor embedment. Longer fasteners should be used to allow for facing materials.
- Anchor embedment into masonry shall be into the face shell, not mortar joints.
- All fully embedded anchors may be flush with the finished facing provided they have the correct embedment into the structure behind the finish material.
- Anchor installations should follow the manufacturer's recommended methods.
- Hex Nuts, Flange Nuts, Cap Nuts, Wing Nuts, etc. (¾" o.d. minimum), are acceptable when used with Hanger Bolt or Male Studs penetrating the fabric only.
- For attachment into female anchors, sidewalk bolts, washered head bolts or bolts with a standard washer are required.
- A caulk or sealant should be used with all wood penetrating anchors.
- All fasteners shall be corrosion resistant as specified in the IRC and IBC or stainless steel.
- Refer to pages 9 and 10 for approved anchors and anchor spacing.
- Refer to page 11 for deflection and storm bar tables.

REVISIONS

Date:

Date:

Date:

Engineering Review By:

Gary D Foreman PE
FL PE 57343

ARMOR SCREEN
SERIES 63
HURRICANE PROTECTION

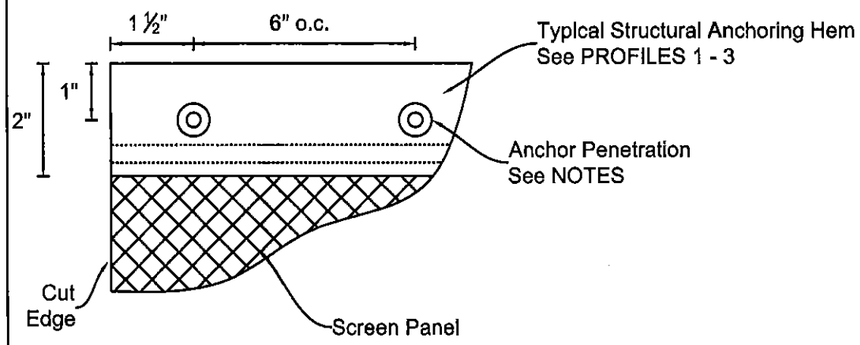
ARMOR SCREEN CORP.
1881 Old Okeechobee Road
West Palm Beach, FL 33409
(561) 841-8890 www.armorscreen.com

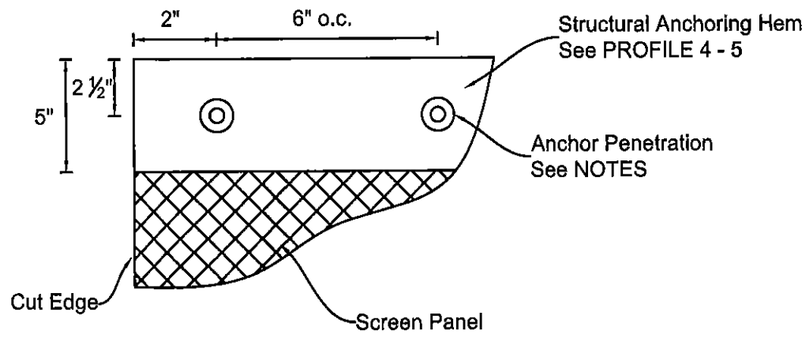
Date: 10/01/10 | Scale: Not to Scale | Page: 1 of 11

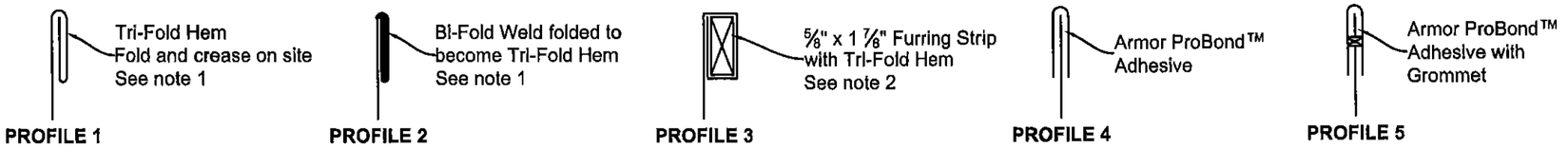
DRAWING NO. 01-2010

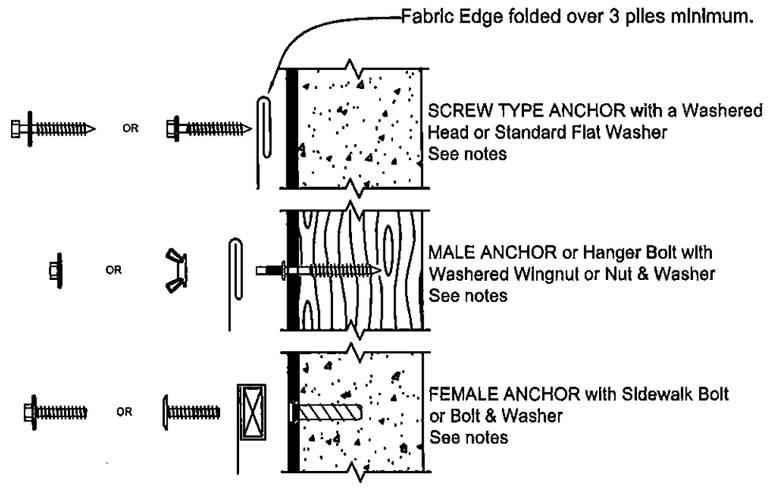
PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 15-0518.03
Expiration Date 01/26/2017
By
Miami Dade Product Control

STRUCTURAL ANCHORING HEMS









SAMPLE ANCHORING FOR PROFILES 1 - 5

APPLIES TO VERTICAL WALL OR HORIZONTAL MOUNTING APPLICATIONS

NOTES:

1. For Direct Screen Attachment, PROFILES 1 and 2, create a hem (see details on this page) by folding and creasing the screen, followed by creating the anchor penetration holes using a Scratch All, nail, or pointed object.
2. Pre-drill the furring strip 6" o.c. per anchor size or use a self-drilling screen (see pages 9 and 10). Secure the screen to the furring strip with staples to ensure positive attachment and eliminate the screen from unrolling.
3. For PROFILES 4 and 5, fastener must utilize a 1 ½" O.D. x 5/16" (or ¼") I.D. flat washer.
4. Structural anchoring hem for PROFILES 4 and 5 may utilize woven or non-woven polypropylene.
5. Refer to pages 9 and 10 for anchor selection.

SCREEN PANEL & HEM DETAILS

Engineering Review By:

Gary D Foreman PE
FL PE 57343

ARMOR SCREEN
SERIES 63
HURRICANE PROTECTION

ARMOR SCREEN CORP.
1881 Old Okeechobee Road
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(561) 841-8890 www.armorscreen.com

Date: 10/01/10 | Scale: Not to Scale | Page: 2 of 11

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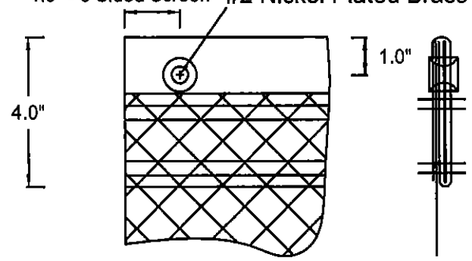
By
Miami Dade Product Control

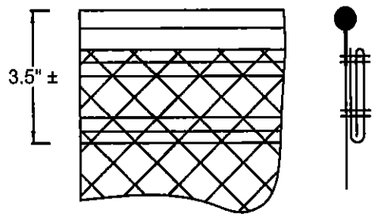
1.5" - 2 Sided Screen
1.0" - 3 Sided Screen #2 Nickel Plated Brass Grommet



Grommet with Stitching Detail

Stitching Detail

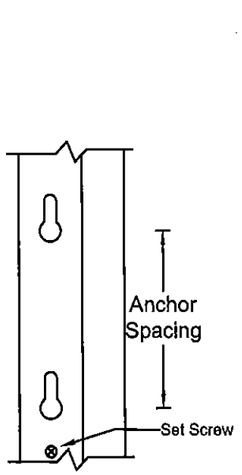
- Support Edge, Trifold Seam around 4" Polypro webbing
- Sewing includes 2 rows, Double Lock Stitch, of Anefil Nylon T135 bonded thread or equal.
- Grommeted through seam.



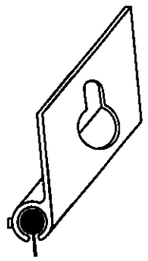
Welded Hemcord with Stitching Detail

Stitching Detail

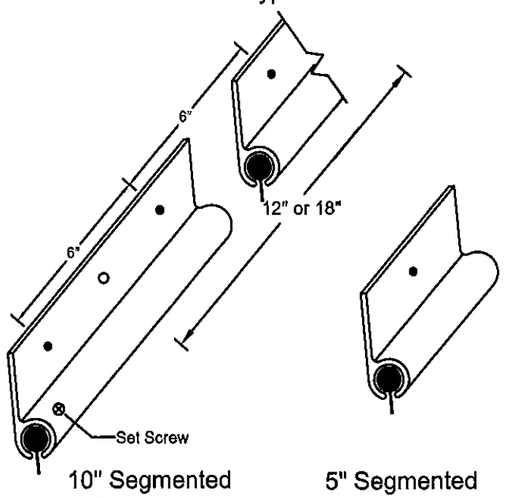
- Hemcord Dia.: 5/16"
- Sewing includes 2 rows, Double Lock Stitch, of Anefil Nylon T135 Bonded Thread or equal.
- Reinforced welded hemcord includes a 2" trifold Polypro Seam sewn over the weld.



Keyhole Slot in Continuous C-Channel

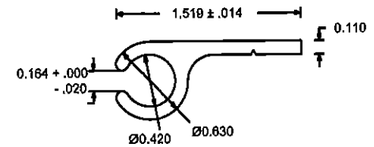


Keyhole Slot in Segmented C-Channel

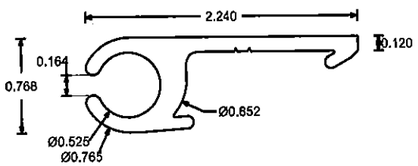


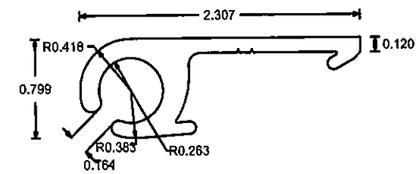
10" Segmented C-Channel Alloy: 6063-T6 Aluminum

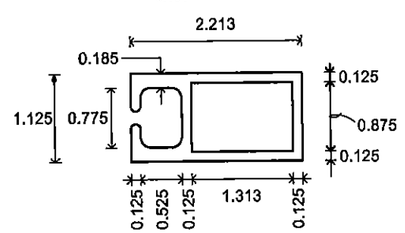
5" Segmented C-Channel Alloy: 6063-T6 Aluminum



Same as above extrusion







C-Channel
Alloy: 6063-T6 Aluminum

NOTE: Heavier alternate extrusion may be used.

NOTES:

1. The length of the segmented C-Channel is governed by the strength of the fabric to C-Channel connection, not the hardware attachment to the C-Channel.
2. When a Keyhole Slot or washer is used on continuous C-Channel, a set screw through the channel and into the substrate is required to lock in place.
3. Refer to pages 9 and 10 for anchor selection.
4. A ¼" TEK Screw may be used to secure the C-Channel end to limit screen movement.

GROMMET / HEMCORD / C-CHANNEL

REVISIONS
Date:
Date:
Date:

Engineering Review By:
Gary D Foreman PE
FL PE 57343

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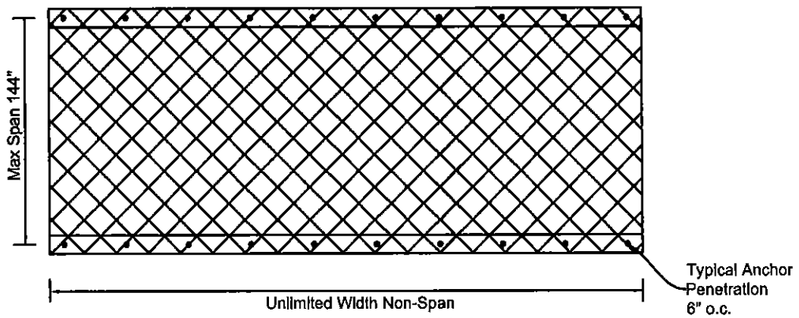
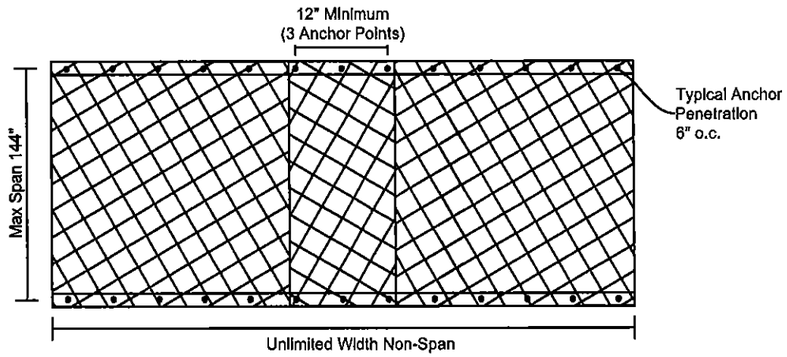
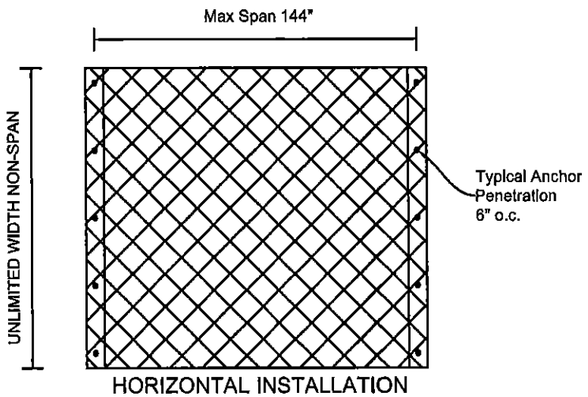


VERTICAL INSTALLATION



SCREEN OVERLAP

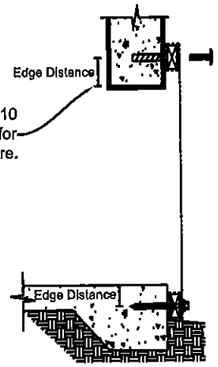


HORIZONTAL INSTALLATION

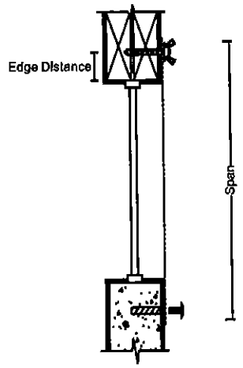
NOTES:

1. Screens may incorporate any combination of Structural Hem PROFILES 1 - 3 (page 2) with the appropriate anchors listed on pages 9 and 10.

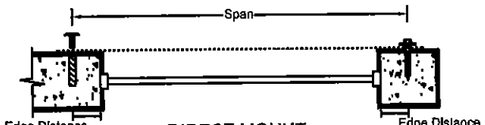
See Tables on pages 9 and 10 for minimum edge distances for specific fasteners and structure.



FURRING STRIP
TYPICAL VERTICAL
SECTIONAL VIEW

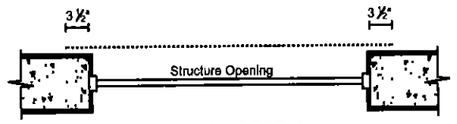


DIRECT MOUNT
TYPICAL VERTICAL
WINDOW
SECTIONAL VIEW



DIRECT MOUNT
COLUMNS
PLAN VIEW

FURRING STRIP
TYPICAL WINDOW
PLAN VIEW



NON-SPAN SECTION
MINIMUM EDGE OVERLAP
(Vertical and Horizontal)

VERTICAL & HORIZONTAL SCREENS

REVISIONS
Date:
Date:
Date:

Engineering Review By:

Gary D Foreman PE
FL PE 57343

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SERIES 63
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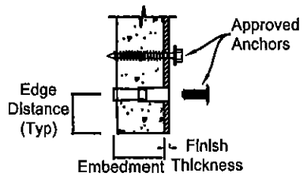
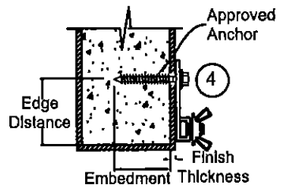
CONCRETE, CMU & FILLED CMU

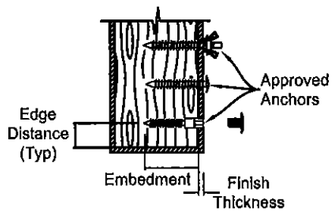


DIRECT MOUNT



F TRACK TYPE
(FLUSH, 1", 2", and 3", Build-Out)

STUD



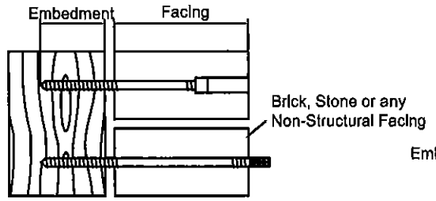
MALE / FEMALE ANCHORS
OR SCREW

⅜" ANCHOR SPACING ~ ALUMINUM TO SUBSTRATE ONLY

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Pressure (psf)	Span 2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'
					24"	36"	48"	60"	72"	84"	96"	108"	120"	132"	144"
⅜"	Drop-In Anchor	1 ½"	3 ¾"	30 (psf)	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	8"
				40 (psf)	12"	12"	12"	12"	12"	12"	12"	12"	8"	8"	8"
	Powers			50 (psf)	12"	12"	12"	12"	12"	12"	12"	8"	8"	8"	6"
				60 (psf)	12"	12"	12"	12"	12"	12"	8"	8"	8"	6"	6"
⅜"	Calk-In Anchor	1 ¼"	3 ¾"	30 (psf)	12"	12"	12"	12"	12"	12"	12"	12"	8"	8"	8"
				40 (psf)	12"	12"	12"	12"	12"	12"	8"	8"	8"	6"	6"
	Powers			50 (psf)	12"	12"	12"	12"	12"	8"	8"	6"	6"	6"	6"
				60 (psf)	12"	12"	12"	12"	8"	8"	6"	6"	6"	--	--

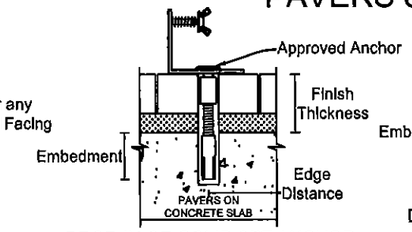
NOTE: All spans for ¼" hardware are designed to +60 psf / -63 psf.

FRAME / BRICK FACADE

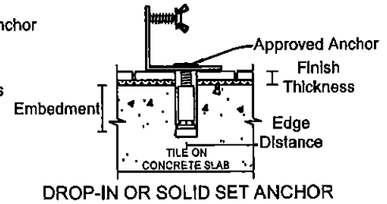


¼" HANGER BOLT OR FEMALE ANCHOR
(Non-Structural Facing)
(Caulk or Sealant suggested to seal facing)
Some damage to the facing maybe expected.

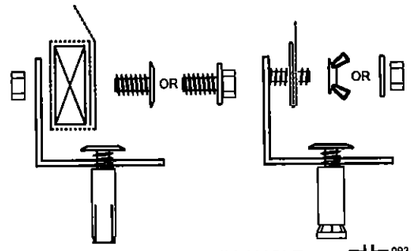
PAVERS & TILE



DROP-IN OR SOLID SET ANCHOR
THREADED ROD / COUPLER
WITH SIDEWALK BOLT

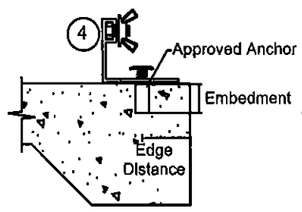


DROP-IN OR SOLID SET ANCHOR
THREADED ROD / COUPLER
WITH SIDEWALK BOLT

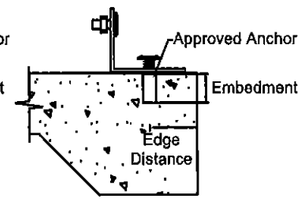


SAMPLE ALUMINUM ANGLE
ANCHORING

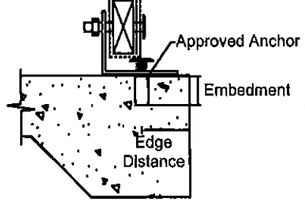
CONCRETE SLABS



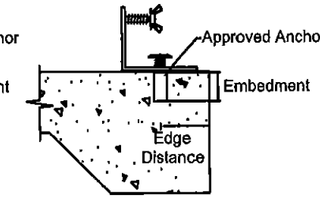
STUDLESS ANGLE / REVERSE
F TRACK
6" o.c. Screen Attachment
• 1" Bolt & Wingnut



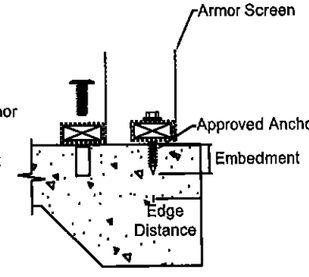
CUSTOM DRILLED
ANGLE ALUMINUM
6" o.c. Screen Attachment
• Sidewalk Bolt & Nut
• Bolt, Nut & Washer



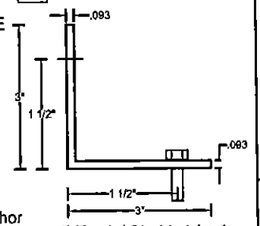
CUSTOM DRILLED
ANGLE ALUMINUM
6" o.c. Screen Attachment
• Sidewalk Bolt & Nut
• Bolt, Nut & Washer



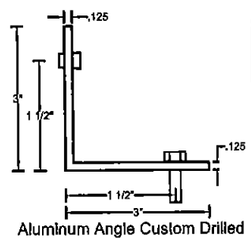
STUDDED ALUMINUM ANGLE 2" x 2"
6" o.c. Screen Attachment
• Wingnut / Nut & Washer



FURRING STRIP / SCREEN
CONCRETE ATTACHMENT
6" o.c. Screen Attachment
• ¼" Anchors



F-Track / Studded Angle



Aluminum Angle Custom Drilled

NOTES:

1. For ¼" anchors, see pages 9 and 10.
2. For ⅜" anchor spacing for Aluminum Angle to substrate, see above table.
3. Screen attachment to aluminum requires 6" on center maximum.
4. Do not use Furring Strip System with F Track.
5. Screens may incorporate any combination of Structural Hem PROFILES 1 - 3 (page 2) with the appropriate anchors listed on pages 9 and 10.
6. F Track and Studded Angle to be minimum 6063-T6 x .093.
7. Aluminum Angle, Custom Drilled to be minimum 6063-T6 x .125.

ANCHOR DETAILS

Engineering Review By:

Gary D. Foreman PE
FL PE 57343

ARMOR SCREEN
SERIES 63
HURRICANE PROTECTION

ARMOR SCREEN CORP.
1881 Old Okeechobee Road
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(561) 841-8890 www.armorscreen.com

Date: 10/01/10 | Scale: Not to Scale | Page: 5 of 11

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Date:

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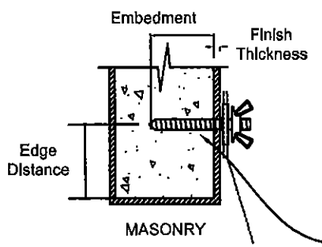
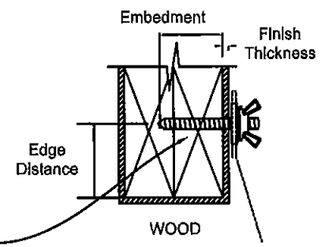
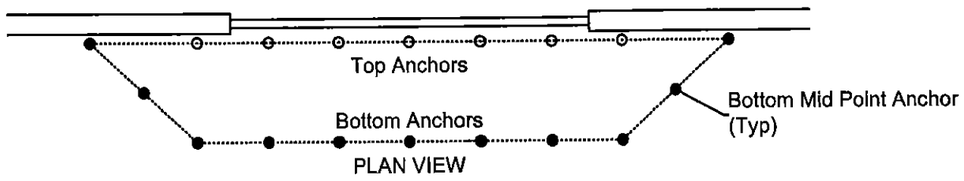
By
Miami Dade Product Control

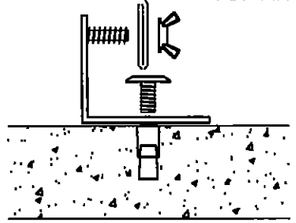




4 DIRECT MOUNT TOP ANCHORING DETAIL

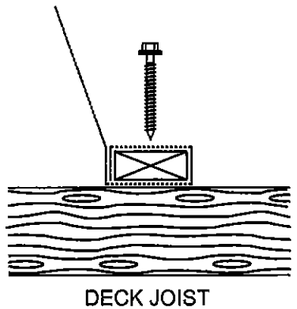


PLAN VIEW

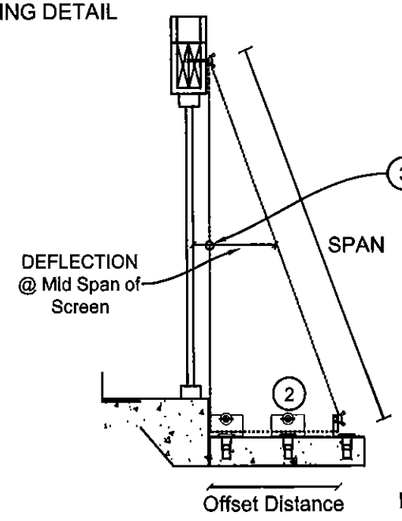


CONCRETE SLAB
Female Anchor &
Sidewalk Bolt

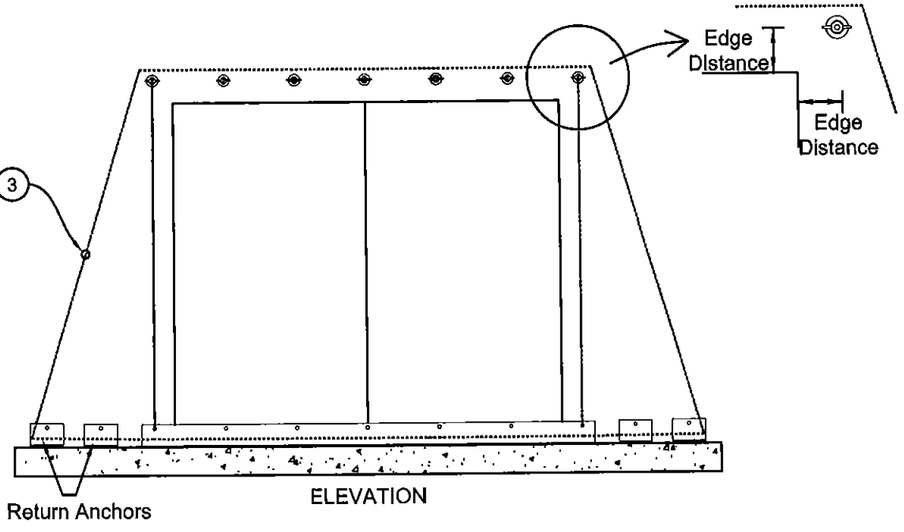
CONCRETE SLAB
Direct Screw Attachment



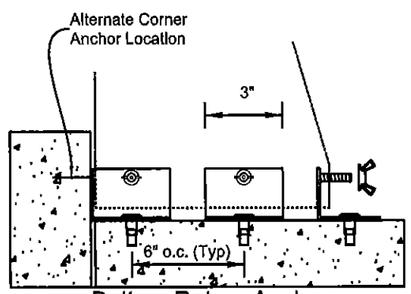
DECK JOIST
Direct Screw Attachment



SIDE SECTION



ELEVATION



Bottom Return Anchors
Using Segmented Angle

ANGLED SCREEN NOTES:

1. Refer to Deflection Table on page 11.
2. Bottom Return Requires a midpoint anchor.
3. Side Return (span side) anchors are optional.
4. Screens may incorporate any combination of Structural Hem PROFILES 1 - 3 (page 2) with the appropriate anchors listed on pages 9 and 10.

ANGLED SCREEN

REVISIONS
Date:
Date:
Date:

Engineering Review By:

Gary D Foreman PE
FL PE 57343

ARMOR SCREEN
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HURRICANE PROTECTION

ARMOR SCREEN CORP.
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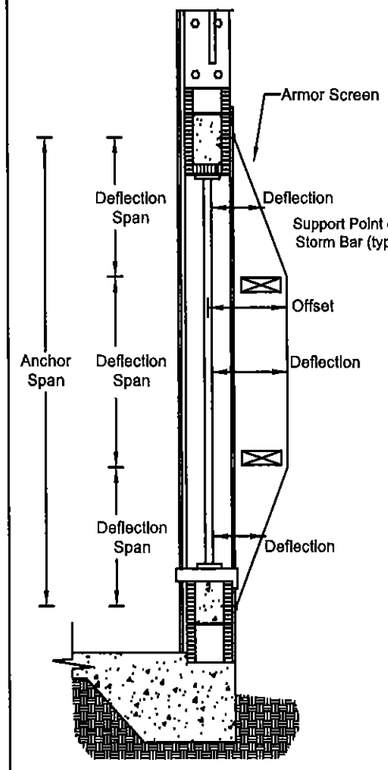
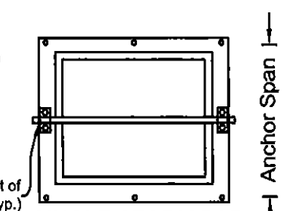
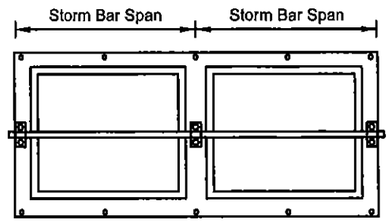


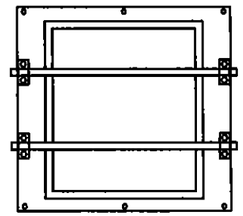
MULTIPLE STORM BAR
WITH SINGLE OPENING



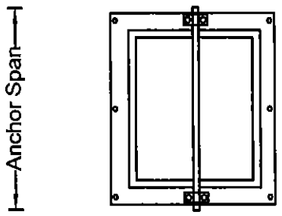
SINGLE STORM BAR
ELEVATION



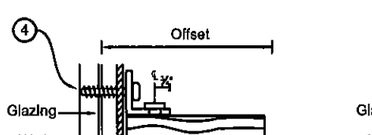
SINGLE STORM BAR WITH
MULTIPLE OPENINGS
ELEVATION

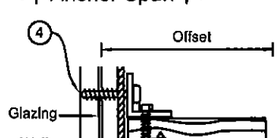


MULTIPLE STORM BAR
ELEVATION

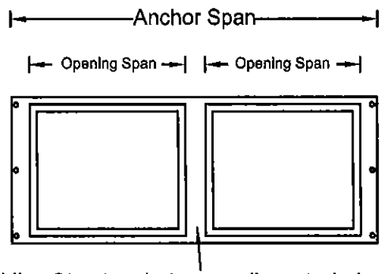


VERTICAL STORM BAR
ELEVATION

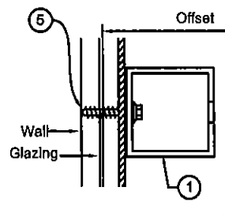




ALTERNATE BRACKETS
2" x 2" x 1½" x ⅛"
ALUMINUM ANGLE
Refer to Storm Bar #1 & #2, page 11



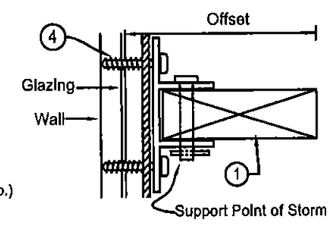
Building Structure between adjacent window / door frames may act as a Storm Bar if proper offset to the glazing is present. This applies to both vertical and horizontal applications.

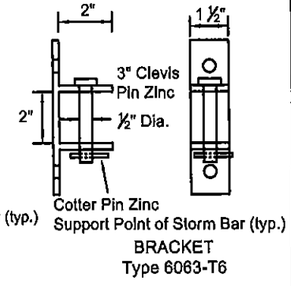


2" x 2" x ⅛"
ALUMINUM TUBE
Type 6063-T6
Refer to Storm Bar #4, page 11
Support Point of Storm Bar (typ.)

STORM BAR NOTES:

1. Refer to page 11 for deflection tables, storm bar tables, and storm bar alloy.
2. The storm bar system is designed to achieve required deflection and may utilize one or more storm bars. The offset may be increased with blocking at the support.
3. Storm bars may be positioned horizontal, vertical, angled or as required.
4. The storm bar bracket may be permanent or removable and attached to the structure using a minimum of two (2) approved ¼" anchors. Refer to pages 9 and 10.
5. The storm bar bracket may be permanent or removable and attached to the structure using a minimum of one approved ¼" anchor. Refer to pages 9 and 10.
6. The storm bar bracket may be wall, floor or ceiling mounted.
7. The storm bar and screen should extend past the protected opening by the distance equal to or greater than 1 ½ times the offset.
8. The storm bar splits the anchor / screen span into multiple spans, each of which is used to determine the minimum deflection.
9. Screen anchors should be sized and spaced using full anchor / screen span.
10. Use "opening" span and positive wind pressure to determine minimum separation between screen and glazing.
11. Use "anchor" span and negative wind pressure to determine fastener size and spacing.





BRACKET
Type 6063-T6

STORM BAR WITH "H" BRACKET

STORM BAR DEFLECTION SYSTEM

REVISIONS
Date:
Date:
Date:

Engineering Review By:

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FL PE 57343

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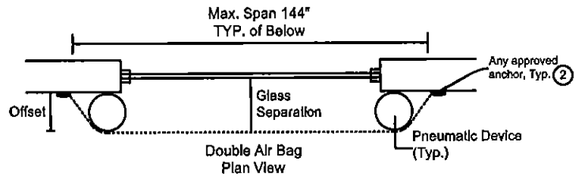
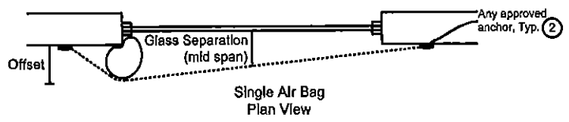
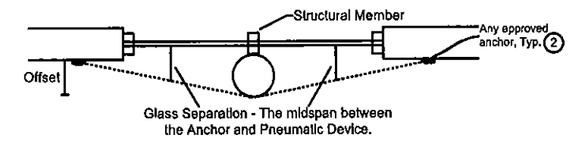
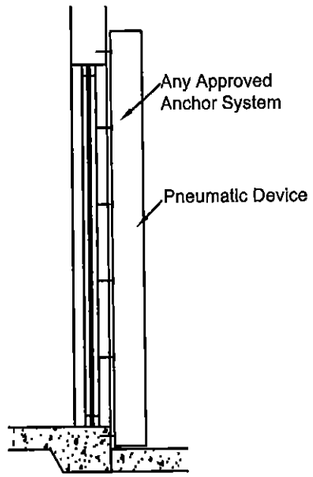


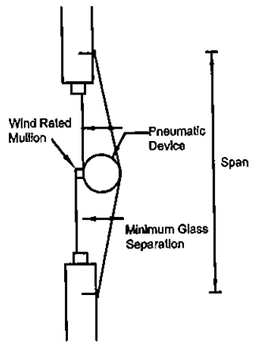




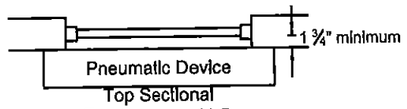
STORE FRONT OR CURTAIN WALL APPLICATION
Plan View



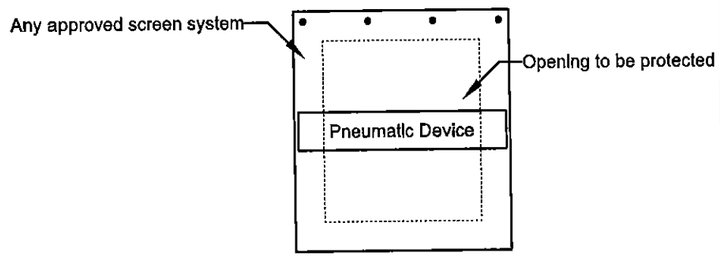
Side Sectional
End Supported PD



Side Sectional
End Supported PD



Top Sectional
End Supported PD
See Note #4



Elevation
End Supported PD
See Note #4

PNEUMATIC DEVICE (PD) SPECIFICATIONS:

1. Pneumatic Device consists of two parts, a refillable polymer air bladder, diameter as appropriate to achieve glass separation, capable of holding air without perceptible leakage, and a tough fabric cover for structural integrity and durability.
2. May be inflated by any residential or commercial vacuum cleaner, or air pump intended for air mattresses or equivalent devices.
3. Upon removal, the Pneumatic Device should be deflated and stored with screen barrier.

NOTES: PNEUMATIC DEVICE (PD) DEFLECTION SYSTEM

1. Refer to the Deflection Table on page 11 to determine PD diameter.
2. Refer to pages 9 and 10 for approved anchors.
3. The PD not supported directly on glazing may rest on a wind rated window mullion.
4. The pneumatic device may be attached to barrier and may rest on but not attached to the structure.
5. Inflation of the device requires a minimum pressure of 2.0 psi.
6. One or more devices may be used to achieve required HVHZ separation.
7. This system may be positioned horizontally, vertically, or as required.
8. The pneumatic device may be permanently attached to the screen or not.
9. The sleeve should not be attached to the building structure.
10. The pneumatic device should be positioned to provide adequate glass separation between the screen / barrier and surface being protected.

PNEUMATIC DEFLECTION SYSTEM

REVISIONS
Date:
Date:
Date:

Engineering Review By:

Gary D Foreman PE
FL PE 57343

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3000 PSI CONCRETE

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (Inches)	Anchor Spacing
¼"	Tapcon Elco or ITW	1 ½"	3"	144"	6"
¼"	Maxi-Set Tapcon ITW	1 ½"	2 ½"	144"	6"
¼"	Panelmate (Male or Female) Elco	1 ¾"	2 ½"	144"	6"
¼"	Panelmate Inserts Elco	1 ⅝"	3"	144"	6"
¼"	Tapcon SG ITW (¼" x 2 ¼")	1 ¾"	2 ½"	144"	6"
¼"	Sammy's SSC ITW	2 ¼"	2 ½"	144"	6"
¼"	Solid Set Anchor All Points	⅞"	3"	132"	6"
¼"	Calk-In Anchor Powers	⅞"	3"	132"	6"
¼"	Drop-In Anchor Powers	1 "	3 "	144"	6"

SOLID GROUTED CMU

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (Inches)	Anchor Spacing
¼"	Spax Screw Spax	1 ½"	2 ½"	144"	6"
¼"	Tapcon Elco or ITW	1 ½"	3"	144"	6"
¼"	Maxi-Set Tapcon ITW	1 ½"	2 ½"	144"	6"
¼"	Panelmate (Male or Female) Elco	1 ¾"	2 ½"	144"	6"
¼"	Panelmate Inserts Elco	1 ⅝"	3"	108"	6"
¼"	Tapcon SG ITW (¼" x 2 ¼")	1 ¾"	2 ½"	144"	6"
¼"	Sammy's SSC ITW	2 ¼"	2 ½"	144"	6"
¼"	Solid Set Anchor All Points	⅞"	3"	96"	6"
¼"	Calk-In Anchor Powers	⅞"	3"	108"	6"
¼"	Drop-In Anchor Powers	1 "	3 "	132"	6"

CONCRETE BLOCK (CMU)

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (Inches)	Anchor Spacing
¼"	Spax Screw Spax	1¼"	2½"	72"	6"
¼"	Tapcon Elco or ITW	1¼"	2½"	72"	6"
¼"	Maxi-Set Tapcon ITW	1"	4"	36"	6"
¼"	Panelmate (Male or Female) Elco	1 ¼"	3 ½"	120"	6"
¼"	Panelmate Inserts Elco	1 ¼"	3½"	120"	6"
¼"	Tapcon SG ITW	1 ¼"	2½"	72"	6"
¼"	Sammy's SSC ITW	1 ¼"	2½"	72"	6"
¼"	Solid Set Anchor All Points	⅞"	3"	96"	6"
¼"	Calk-In Anchor Powers	⅞"	3"	84"	6"

NOTES:
1. Maximum spans designed to +60 psf / -63 psf.
2. Provide longer fasteners, if required, to allow for thickness of non-structural finishes such as stucco, plaster, brick, stone, siding, etc.
3. All anchor holes to be clean and dust free before inserting intended anchor.
4. All anchors to be as specified.
5. Edge distances and embedments are minimums.

REVISIONS
Date:
Date:
Date:

Engineering Review By:
Gary P Foreman PE
FL PE 57343

ARMOR SCREEN
SERIES 63
HURRICANE PROTECTION

ARMOR SCREEN CORP.
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WOOD SYP #2 (G = 0.55)

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (Inches)	Anchor Spacing
¼"	Spax Self Drilling Screw Spax	2"	¾"	144"	6"
¼"	Lag Screw	2"	¾"	144"	6"
¼"	Tapcon or #14 Wood SC Elco or ITW	2"	¾"	144"	6"
¼"	Panelmate (Male or Female) Elco	2"	¾"	144"	6"
¼"	Panelmate Inserts Elco	1 ⅝"	1¼"	144"	6"
¼"	Tapcon SG ITW	2"	¾"	144"	6"
¼"	Sammy's SSC ITW	2"	¾"	144"	6"
¼"	Hanger Bolt	2"	¾"	144"	6"

NOTES:
1. Maximum spans designed to +60 psf / -63 psf.
2. Caulk or sealant is recommended for all penetrations into a wood substrate.
3. Provide longer fasteners, if required, to allow for thickness of non-structural finishes such as stucco, plaster, brick, stone, siding, etc.
4. All anchors to be as specified.
5. Design as per NDS 2012.
6. Douglas Fir - Larch is an acceptable alternate.
7. Edge distances and embedments are minimums.

STEEL AND ALUMINUM

	Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (Inches)	Anchor Spacing
20 Gage Metal Studs	¼"	Self Drilling Screws ¼"-14 TEKS	note 2	½"	72"	6"
18 Gage Metal Studs	¼"	Self Drilling Screws ¼"-14 TEKS	note 2	½"	96"	6"
3/16" Steel	¼"	Self Drilling Screws ¼"-14 TEKS	note 2	½"	144"	6"
¼" (12 GA) Steel	¼"	Self Drilling Screws ¼"-14 TEKS	note 2	½"	144"	6"
⅜" and ½" Steel	¼"	Rivet Nuts ¼" - 20 Atlas	--	¾"	144"	6"
⅛" Aluminum 6063-T6	¼"	Self Drilling Screws ¼"-14 TEKS	note 2	½"	120"	6"
⅛" Aluminum 6063-T6	¼"	Rivet Nuts ¼" - 20 Atlas	--	¾"	144"	6"

NOTES:
1. Maximum spans designed to +60 psf / -63 psf.
2. Provide longer fasteners, if required, to allow for thickness of non-structural finishes such as stucco, plaster, brick, stone, siding, etc.
3. Screws shall extend past metal at least ¼".
4. All anchors to be as specified.
5. Edge distances and embedments are minimums.

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STORM BAR TABLE

Storm Bar Span / Length		3'	4'	5'	6'	8'	10'	12'	14'
Max. PSF		Per Deflection Table							
Deflection		Per Deflection Table							
1	Wood 2" x 6"	x	x	x	x				
2	Wood 2" x 8"	x	x	x	x	x			
3	Alum. Tube 1" x 2" x ⅛" 6063-T6	x							
4	Alum. Tube 2" x 2" x ⅛" 6063-T6	x	x	x					
5	Alum. Tube 2" x 4" x ⅛" 6061-T6	x	x	x					
6	Alum. Tube 2" x 4" x ¼" 6061-T6	x	x	x	x				
7	Alum. Tube 2" x 6" x ⅛" 6063-T6	x	x	x	x	x			
8	Alum. Tube 2" x 6" x ¼" 6061-T6	x	x	x	x	x	x	x	
9	Alum. Tube 2" x 8" x ¼" 6061-T6	x	x	x	x	x	x	x	x

NOTES:
1. Wood Storm Bar #1 and #2 requires alternate storm bar bracket, see detail on pages 7.
2. Wood Storm Bar #1 and #2 to be #2 SYP (Southern Yellow Pine) or Douglas Fir-Larch.
3. Storm Bars #3, #4, #5 and #6, screen width supported by storm bars shall be equal to span or 6' maximum. For screens wider than maximum width use multiple storm bars.

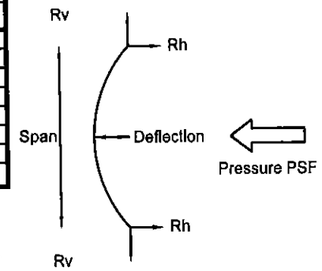
MINIMUM GLASS SEPARATION TABLE

Span in feet	Span in inches	Deflection in Inches			
		30 psf	40 psf	50 psf	60 psf
2 ft.	24	3.0	3.1	3.3	3.5
3 ft.	36	4.0	4.2	4.4	4.8
4 ft.	48	4.9	5.3	5.5	6.0
5 ft.	60	5.9	6.3	6.7	7.3
6 ft.	72	7.2	7.8	8.1	9.0
7 ft.	84	8.2	8.8	9.3	10.2
8 ft.	96	9.2	9.9	10.4	11.5
9 ft.	108	10.2	11.0	11.5	12.8
10 ft.	120	11.2	12.0	12.7	14.0
11 ft.	132	12.2	13.1	13.8	15.3
12 ft.	144	13.1	14.2	14.7	16.5

NOTES:
1. Deflection is the minimum glass separation measured at MID SPAN of the screen and subject to interpolation between listed spans.
2. One inch (1") has been added to actual minimum separation for safety factor.

SCREEN REACTIONS FOR PRESSURE AND SPAN

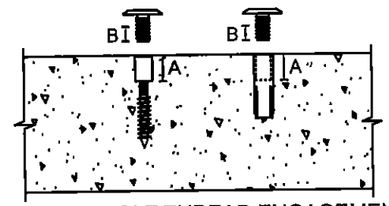
Load (psf)		Span										
		2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'
		24"	36"	48"	60"	72"	84"	96"	108"	120"	132"	144"
30	Rh	30	45	60	75	90	105	120	135	150	165	180
	Rv	94	141	188	234	281	328	375	422	469	516	563
40	Rh	40	60	80	100	120	140	160	180	200	220	240
	Rv	112	169	225	281	337	393	449	506	562	618	674
50	Rh	50	75	100	125	150	175	200	225	250	275	300
	Rv	129	193	258	322	387	451	515	580	644	709	773
60	Rh	60	90	120	150	180	210	240	270	300	330	360
	Rv	143	214	286	357	429	500	571	643	714	786	857



NOTES:
1. Reaction Rh can be positive (towards structure) or negative (away from structure).
2. Rv is always tension as shown.

EMBEDDED ANCHOR DIAMETER	¼"	⅜"
A	½"	1⅛"
B	5⁄16"	7⁄16"

A - Internal Thread Length
B - Minimum Thread Engagement



MINIMUM BOLT THREAD ENGAGEMENT

NOTES:
1. Table applies to any threaded connection.
2. Refer to anchor spacing tables, pages 9 and 10, for anchor embedment.
3. Edge distances and embedments are minimums.

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